

NATURAL HISTORY
OF
GUIDA FARM CONSERVATION AREA

by

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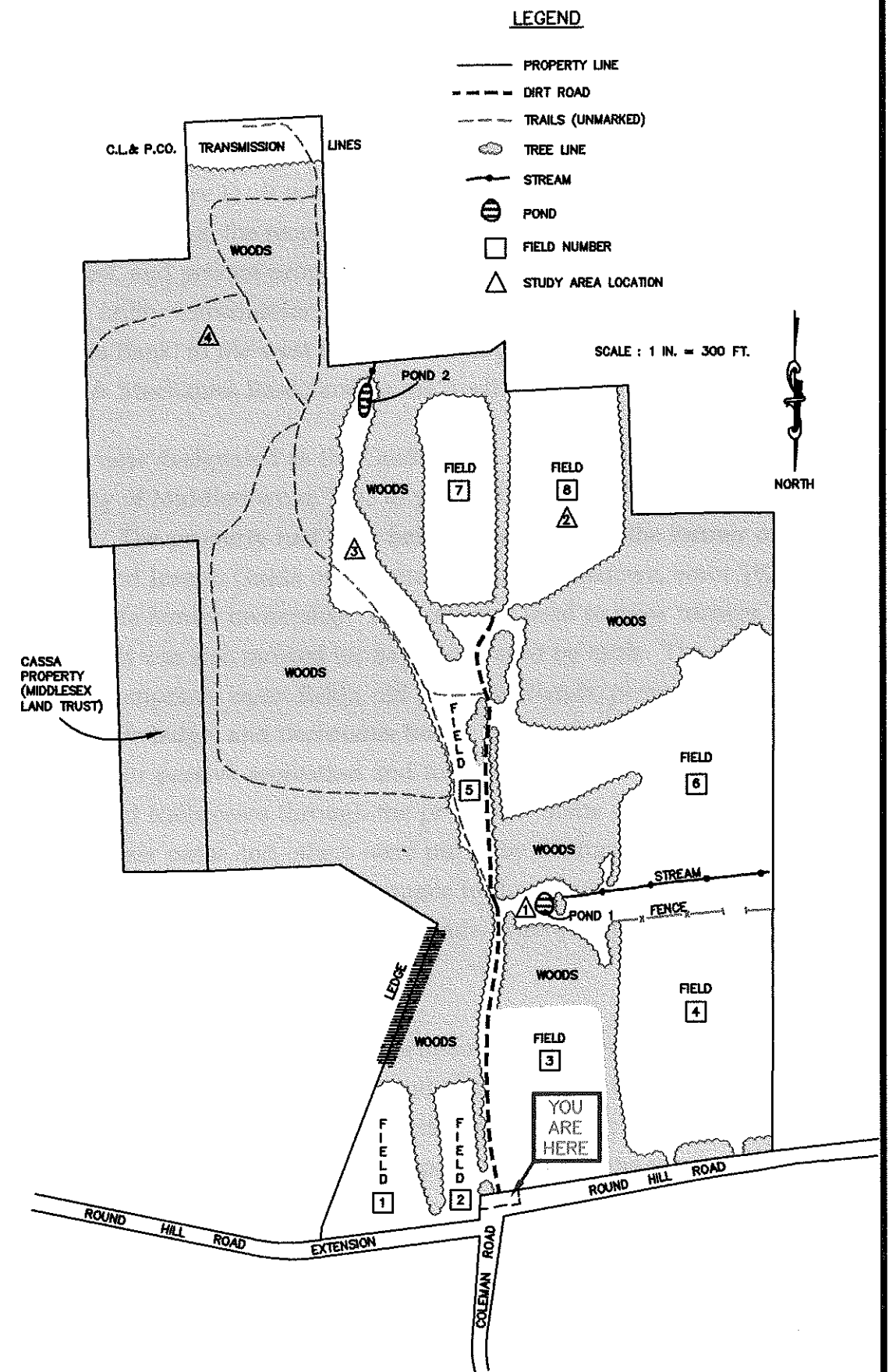
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INTRODUCTION

The overall goal of my project was to complete a comprehensive inventory of the flora and vertebrate fauna of The Guida Farm Conservation Area. My intent is that the results of this project will be used by the City of Middletown as a summary of present conditions against which future changes can be measured. I hope that the baseline information presented will be useful in future planning for the area and in detecting the effects of future management practices.

To accomplish my goal, I performed a biological inventory that included mammals, birds, reptiles, amphibians, and vegetation. I also produced a map of the area showing trails, habitats, landmarks, and study areas. Key habitat was photographed to serve as a reference for changes that may occur in the future. To form a baseline of bird species occurring on the property, a list of species has been assembled since 1977. A point-count census of birds was conducted from April - October 1994. The results of the 1994 inventories are presented along with my personal observations as a naturalist spanning the nearly twenty years I have lived adjacent to the property. All observations are mine unless otherwise noted.

FIGURE 1. GUIDA FARM CONSERVATION AREA



STUDY AREA

The **Guida Farm Conservation Area** is a 99-acre (40-hectares) tract located at the junction of Round Hill Road and Coleman Road in Middletown, Connecticut (Figure 1). It is bordered to the east by exposed Jurassic conglomerate ridge, the recently acquired Cassa property of the Middlesex Land Trust, and private property owned by Good News Radio (WIHS); to the south by utility transmission lines and property belonging to Farmers & Mechanics Bank; to the west by the Makuch property and land owned by Farmers & Mechanics Bank; and to the north by Round Hill Road.

The land now designated as the Guida Farm Conservation Area was acquired by the City of Middletown in 1992 as part of the City's Open Space Acquisition Program. The property had been held in the family of the former owners, Anthony and Joseph Guida of Coleman Road, Middletown, since 1929. Under Guida family ownership, the land was used to grow turnips, potatoes, and corn. It was also mowed for hay and grazed by cattle. The property presently comprises open fields, old fields, wetlands, permanent ponds, conglomerate ledge, and deciduous forest. The conservation area is open to the public for passive recreation and for environmental education. Several well-traveled trails cross through the property. Some of the trails are expanded deer paths and others were put in by the former owners for access. A parking area is located at the entrance to the Conservation Area at the junction of Round Hill and Coleman roads, where a sign board with a map of the area can be found.

A dirt road running in a general north-south direction in line with Coleman Road traverses the property. The road-bed continues, lined in places with the remnants of stone walls, from the southern most fields (7 and 8) through the bordering woodland of adjoining property and on to the transmission lines. The portion of the road found on the conservation area is called

Coleman Road Extension on City maps. It is commonly believed that this road-bed is the remnant of a rural highway connecting the towns of Durham and Middletown. Some local residents say that it was used to drive animals to market, others claim that it is an old stagecoach road (Cass 1994). It is now used as the main access into the property and as a link with other trails.

The natural communities found in the conservation area are diverse. They include: eight large open fields with associated hedgerows, two distinct old field habitats dominated by gray birch or red-cedar, two man-made ponds with associated wetlands, and mixed deciduous forest that includes an exposed section of Jurassic conglomerate ledge. Appendix A contains photographs taken on 10 October 1994 depicting the open field, old field, and pond habitats.

Open Field:

The eight large open fields (Appendix A, Photographs 1 - 7) comprise approximately thirty-five acres (14 hectares) of the study area and range in size from about two to ten acres (1 to 4 hectares). They are composed of mixed grasses dominated by orchard (*Dactylis glomerata*) and sweet vernal grass (*Anthoxanthum odoratum*). Other grasses found include timothy (*Phleum pratense*), Kentucky bluegrass (*Poa pratensis*) and tall oats grass (*Arrhenatherum elatius*). Most of the fields support some red clover (*Trifolium pratense*), white clover (*Trifolium repens*), and alfalfa (*Medicago sativa*). Wild madder (*Gallium mollugo*) is growing in all fields and is becoming a dominant species in Fields 4 and 8. Field 4 has evening lychnis (*Lychnis alba*), Queen Anne's lace (*Daucas carota*), and buttercup (*Rannunculus acris*) encroaching in greater numbers each year. At present, the Guidas continue to lime, fertilize, and mow all of the fields for hay in June and September.

Old Field:

There are two types of old field habitat in the conservation area. The more mature and most extensive is dominated by eastern red-cedar (*Juniperus virginiana*). The other is younger, smaller, and dominated by gray birch (*Betula populifolia*).

There are two groves of red-cedar. One is located on the east side of Coleman Road Extension and the other larger grove is on the west side (Appendix A, Photograph 3). The trees are mature with many over twenty-five feet tall. Most of the trees produced an unusual abundance of fruit in 1994. The ground beneath is sparsely covered with greenbrier (*Smilax rotundifolia*), patchy grasses, and mosses.

The second type of old field habitat, south of field 5, is characterized by abundant gray birch trees (Appendix A, Photograph 10). Most of the birches are at least twenty feet tall with a few over thirty feet. Old gnarled apple trees and a few red-cedars are scattered among the birches. The underbrush is dominated by Japanese barberry (*Berberis thunbergii*) and multiflora rose (*Rosa multiflora*). Abundant privet (*Ligustrum vulgare*) is growing along the two trails that run through this area. Goldenrods (*Solidago spp.*) and some asters (*Aster spp.*) line the trails in late summer.

Ponds and Associated Wetlands:

The wetlands in the conservation area include two man-made ponds (ponds 1 & 2, Figure 1), and the wet areas associated with them. The two ponds were dug out in existing water-filled depressions in the early 1960s. Both were used to water a herd of polled herefords that were kept seasonally on the land until 1992.

Pond 1 is approximately thirty feet (ten meters) across and about three and a half feet (one and a half meters) deep (Appendix A, Photograph 8). The substrate is deep silty mud and supports abundant aquatic vegetation; algal blooms are common in the summer. There are many springs seeping into

this pond, primarily from the east bank. An intermittent outflow from the southwest side of the pond has running water seasonally from fall through spring. This water course continues in a westerly direction and bisects fields 4 and 6. In recent years, this pond has frozen over completely for a period during two winters.

In summer, smaller forget-me-nots (*Myosotis laxa*) are found along the banks of the feeder stream on the southeast edge of the pond. In late summer, the pond is ringed with nodding bur marigolds (*Bidens cernua*) and spike rush (*Eleocharis acicularis*). A clump of golden alexanders (*Zizia aurea*) grows along the fence line just north of the outflow stream running between fields 4 and 6. In the wetter area near that same fenceline are many species of grasses, sedges, and rushes including reed canary grass (*Phalaris arundinacea*), soft rush (*Juncus effusus*), and a small stand of sweetflag to the west (*Acorus calamus*).

Pond 1 also supports a diverse aquatic invertebrate population. Inhabiting this pond are several species of dragonfly/damselfly nymphs, mayflies, caddisflies, midges, mosquitoes, backswimmers, water boatmen, crawling water bugs, diving beetles, oligochaetes, leeches, and snails.

Pond 2 is approximately fifty feet (seventeen meters) long and eighteen feet (six meters) wide (Appendix A, Photograph 9). It is also about three and a half feet (one and a half meters) deep with a very silty substrate. This pond is surrounded on three sides by deciduous forest of mostly red maples and opens onto an associated partly shaded wet meadow to the north. Springs seep into the pond from the wet meadow area during most of the year. This seepage area dries up in summer during periods of prolonged drought. The wet meadow habitat contains some of the property's most beautiful wildflowers with abundant cardinal flower (*Lobelia cardinalis*), a stand of New York ironweed (*Veronia noveboracensis*) (Appendix A, Photograph 11) swamp rose (*Rosa palustris*), swamp milkweed (*Ascleias incarnata*), boneset

(*Eupatorium perfoliatum*), and monkey flower (*Mimulus ringins*) all in bloom in August. This meadow also contains the only occurrences of sensitive fern (*Onoclea sensibilis*), water pennywort (*Hydrocotyle umbellata*), jewelweed (*Impatiens capensis*), and green ash (*Fraxinus pennsylvanica*) that I found on the property. Most of the aquatic invertebrates listed in the description of Pond 1 are also present.

Deciduous Forest:

The forest community is represented by mostly mature mixed deciduous trees. The largest tract of forest land is found in the southeastern section of the property, with smaller sections located just south of Field 6 and east of fields 1 and 5. The perimeters of the fields are also composed of mixed deciduous trees. Two trails lead into the largest tract (Figure 1). One enters from the southeast corner of Field 5. Another trail runs from the middle of the east edge of Field 5 through red-cedars into mixed hardwoods to a barbed wire fence and stone wall, then turns southward into an open area, where white pines were planted in 1993, before entering the forest. Witch hazel shrubs (*Hamamelis virginiana*), black birch (*Betula lenta*), mixed oaks, and some small red-cedars are along the upper section of this second trail.

The largest tract of forest is characterized at at lower elevations by sugar maples (*Acer saccharum*), mixed oaks, and black birch. The richer soil in this section of open woods supports an understory of maple-leaf viburnum (*Viburnum acerifolium*), hepatica (*Hepatica americana*), several species of violets including yellow wood violet (*Viola pubescens*), both rue and wood anemones (*Anemonella thalictroides*, *Anemone quinquefolia*), early saxifrage (*Saxifraga virginensis*), white baneberry (*Actaea pachypoda*), helleborine orchids (*Epipactis helleborine*), perfoliate bellwort (*Uvularia pefoliata*) and several species of ferns, including rattlesnake fern (*Botrychium virginianum*). As the terraine slopes upward toward the east- southeast the soil is rockier and drier with exposed sections of conglomerate ridge near the eastern border of the property. At the northern limit of the ridge in the

conservation area (just south of Round Hill Road Extension) are the only occurrences I found of spring beauty (*Claytonia virginica*) and lance-leaved wild licorice (*Galium lanceolatum*). The upland forest farther south is dominated by American beech, black birch, and chestnut oak. Occasional American chestnut saplings are interspersed throughout the woods and along the trails. The understory is characterized by maple-leaf viburnum, lowbush blueberry, and pink azalea. I found one vegetative pink lady's slipper (*Cypripedium acaule*) near the southeastern border of the property.

One other section of deciduous forest occurs to the south and east of Field 6 on high rocky ground. It bisects fields 6 and 8 and borders the Makuch property to the west. This area is dominated by black birch, various oaks, and red-cedar.

METHODS

Much of the information on vertebrate species included in this report stems from opportunistic observations made since 1977 (Appendices B, C, D, E, F). Other methods employed during this study are described below.

Mammal records were obtained primarily through opportunistic observations. I made searches at different times of day, especially at twilight and after dark. I also identified tracks, scat, and feeding signs. Tracking was done mainly after snowfalls. On two dates, small mammal traps were set in the late afternoon. Thirty-seven small mammal live traps were set on the afternoon of 29 September 1994. The skies were overcast with a temperature in the low 60s F. The traps were baited with a mixture of peanut butter and oatmeal; cotton bedding was included for the comfort of any captured animals. Traps 1 - 11 were placed in the longer grasses along the fenceline separating fields 4 and 6. Numbers 12 - 15 were set in the grassy area just south of the fence and west of Pond 1. Traps 16 - 19 were set under the multiflora rose and red-cedar adjacent to Pond 1. Traps 20 - 26 were placed along the sides of Coleman Road Extension on stone walls and under trees and Japanese barberry. Numbers 27 - 29 were set around an old apple tree to the east of the trail and just north of Field 7. Traps 30 - 36 were placed in various parts of Field 7 including a woodchuck burrow. The last trap was set on the east side of Coleman Road Extension on a bank at the southwest corner of Field 2. The traps were checked approximately two hours later, re-set where needed and checked again the next morning. Twelve traps were again set on the afternoon of 18 October 1994, but were collected (all empty) after 2.5 hours because of inclement weather.

Information on birds of the conservation area was obtained in two ways. One source was the record of species that I have kept since I moved to Middletown in 1977 (Appendix B). From this record, I developed a seasonal frequency of

birds listing (Appendix C). I also conducted point-count censuses of birds at four selected habitats (see below) on eight days from April through October 1994. All censuses were conducted in the morning beginning between 0830 and 1030 EDT. Censuses for all four sites generally took 1.25 to 1.5 hours. I sat in a predetermined location and waited for five minutes, then recorded birds for ten minutes. Birds perched or heard within the described site boundaries and those flying overhead were recorded. I noted any unusual observations made before or after the ten-minute counts.

Bird Census Site 1 was adjacent to Pond 1 (Figure 1). The study area comprises a small spring-fed pond and the open area immediately surrounding it. The site is approximately 80 percent open and bordered on the east by a grassy bank (with Coleman Road Extension just beyond). The toe of the bank is wet most of the year due to several springs which feed into the pond. It is bordered to the south by deciduous woodland and a small feeder stream that enters and exits the pond on this border, to the west by a small stand of red-cedar and multiflora rose with open wet meadow beyond, to the north by red-cedar and multiflora rose. All observations were made as I sat on the east bank, facing west.

Bird Census Site 2 was in the middle of Field 8 (Figure 1). This field is approximately five acres (2 hectares) of mixed grasses dominated by orchard and sweet vernal grasses and wild madder. Site 2 is surrounded by hedgerow and mixed deciduous woodland on the south, west, and northern borders. The east side has a row of deciduous trees, red-cedar, sumac, and barberry that divides this field from Field 7. The grass is mowed for hay twice each season (at the end of June and again in early September). I recorded all birds from the open field and from the trees and shrubs on the perimeter.

Bird Census Site 3 was in old field habitat northeast of Field 7, along the trail leading to the woodland trail that links up with the transmission lines (see Figure 1). This area was once used as pasture, there are several old apple trees

scattered among the much newer growth dominated by gray birch, some red-cedar, multiflora rose, and Japanese barberry. I made my observations from the midst of these species in front of a large shag-bark hickory tree.

Bird Census Site 4 was on the east side of the woodland trail leading to the transmission lines, in the midst of mature hardwood forest (see Figure 1). The area is a dry southwest-facing slope of unexposed conglomerate ridge dominated by beech, black birch, and mixed oaks, with an understory of maple-leaf viburnum. Observations were made from a fallen tree next to a dead American chestnut sapling.

Reptiles and amphibians were collected by dip-net and hand capture from the water's edge. Animals caught were identified and promptly released. Reptile and amphibian data were also collected on 31 March 1994 by a Natural History of Spring class from Wesleyan University, led by Geoffrey Hammerson. The class arrived just after dark and caught specimens in dip-nets at both ponds.

The vegetation inventory was performed from April through October 1994. Twenty-two visits to the conservation area were made specifically for the identification of plants. Plants were also identified when I was on the property for other inventories or purposes. I identified trees, shrubs, and herbaceous plants using field guides and *Gray's Manual of Botany*. Most plants were identified in the field. When that was not possible, specimens were placed in a plastic bag and brought home to be re-examined. I prepared pressed specimens of plants for which I needed confirmation of my identifications.

RESULTS

Mammal Inventory:

I identified eighteen species of mammals on the property (Appendix B). In addition, I found weasel tracks several years ago, in snow near a stone wall. However, I made no actual sightings of weasels. I also observed bats on a regular basis over the warmer months, but I have never been able to make positive species identifications.

Annotated List of Mammals

Didelphidae

Opossum, *Didelphis virginianus* - I observed opossums crossing the open fields at dusk on several occasions, and I found opossum tracks in snow during winter in these same areas.

Soricidae

Short-tailed Shrew, *Blarina brevicauda* - I saw and heard short-tailed shrews foraging along the edges of the woodland trails and also found shrew tunnels under melting snow in woodland borders.

Talpidae

Star-nosed Mole, *Condylura cristata* - Mole tunnels and mounds found in the wet soil areas west of Pond 1 and along the outlet stream of Pond 1 (where the stream crosses fields 4 and 6) are assumed to be those of *C. cristata*. A star-nosed mole skull was found in an owl pellet in the red-cedar stand north of Pond 1.

Eastern Mole, *Scalopus aquaticus* - Eastern mole tunnels were common on higher ground in all 8 fields and along the woodland trails.

Vespertilionidae

Bats, I observed bats hunting insects during warm weather months, but was unable to determine which species was (were) present.

Procyonidae

Raccoon, *Procyon lotor* - Tracks occurred in wet soil around the edges of both ponds, and on two occasions I found a raccoon sleeping in a tree during the

day. In winter I observed raccoon tracks in the snow nearly throughout much of the property, especially near water.

Mustelidae

Weasel, *Mustela sp.* - Tracks occurred several years ago in snow along the stone wall that borders Field 4 on the west and in snow near the wooded western border of Field 8. I believe these were to be from a short-tailed weasel because of their small size of less than 1 inch (2.54 cm), straddle of 2 inches (5.08 cm), and a stride that varied but was in the weasel range of 10 to 12 inches (25.4 to 30.4 cm).

Striped Skunk, *Mephitis mephitis* - Occasionally I observed skunks after dark in Field 4. Skunk sign, circular forage holes and tracks, occurred throughout the property in the fields and old field habitats.

Canidae

Coyote, *Canis latrans* - I found single individuals in fields 4 and 8 on many occasions. I came upon a large male, at close range, in the fall of 1993 on Coleman Road Extension in the vicinity of Pond 1 and again in the middle of Field 8 in spring 1994. Howling and yipping often occurred when the fire whistles in Durham/ Middlefield sounded. I found coyote scat on trails throughout the property and along the trails under the powerlines to the south of the conservation area. See coyote reference under white-tailed deer listing.

Red Fox, *Vulpes vulpes* - I observed red foxes on a fairly regular basis until about five years ago (1989) when the coyotes first appeared. Animals were seen individually and once in a family group of four (two kits). Most sightings occurred in fields 2, 4, and 6.

Gray Fox, *Urocyon cinereoargenteus* - Gray foxes were sighted in the past (before coyotes) in Field 4 and across the road on the Brooks property (Round Hill Road) where they were often observed by my neighbors Barbara and Gene Brooks.

Sciuridae

Woodchuck, *Marmota monax* - Woodchucks occurred in fields 4, 6, 7, and 8 on a regular basis in the summer. Burrows are also found in those fields as well as along the wooded field borders (winter den sites). In July 1992, I came upon a red-tailed hawk with a newly caught half-grown woodchuck in Field 6.

Eastern Chipmunk, *Tamias striatus* - I often saw chipmunks running along stone walls on the east and west borders of the property.

Southern Flying Squirrel, *Glaucomys volans* - I assume that flying squirrels inhabit the deciduous forest of the conservation area. Our family cat, which hunted almost exclusively on the property, brought home the complete remains of two southern flying squirrels several years ago. This same cat left several flying squirrel tails on our door step over the years. Hickory nuts with very finely chewed holes, characteristic of flying squirrel feeding, were found in the deciduous forest area.

Eastern Gray Squirrel, *Sciurus carolinensis* - Gray squirrels and squirrel nests were found in all wooded areas of the property.

Muridae

White-footed Mouse, *Peromyscus leucopus* - White-footed mice were found in wooded areas. I found acorns, hickory nuts and chokecherry seeds with characteristic white-footed mouse feeding holes in them. Mice were also occasionally found in bird nest boxes on the eastern border of Field 5. Nine mice were caught in the traps set overnight on 29 and 30 September 1994.

Meadow Vole, *Microtus pennsylvanicus* - I found meadow voles and vole runways in the longer grasses of all fields, especially near the parking area on the east side of Coleman Road Extension, in the area of tall grass on the west of Pond 1, and along the barbed wire fence that separates fields 4 and 6. One individual was caught in a trap in the southern portion of Field 7. Vole runs were found in all the grassy areas mentioned and were easily observable under melting snow.

Muskrat, *Ondatra zibethica* - I have watched a pair of muskrats at Pond 1 for several years. They were often seen floating at the surface late in the day or swimming underwater back to the den site. They were also observed feeding on vegetation at the water's edge on three days during the point-count census at Pond 1.

Leporidae

Eastern Cottontail, *Sylvilagus floridanus* (?) Cottontails were commonly seen in open grassy areas near the barberry and multiflora rose thickets. I believe that these rabbits were eastern cottontails (*S. floridanus*) although confirmation (which is done by skull examination or DNA testing) was not possible. The habitat is also right for the rare, New England cottontail (*S. transitionalis*), which is a native species. Cottontail scat was scattered

throughout this habitat and I have found dead rabbits and skulls periodically over the years in the conservation area.

Cervidae

White-tailed Deer, *Odocoileus virginianus* - Deer occurred throughout the property in both open field and woodland. The largest number seen at one time was a herd of thirteen observed by a neighbor in 1994. The largest group personally seen was a herd of eight on a winter night in 1989. I found a newborn fawn in May 1994, approximately 100 feet (30 meters) west of the middle of Field 8. A freshly killed doe was found at the end of November 1994 on the top of the hill of Field 6. There was sign of a struggle, and I presume that this animal was brought down by a predator (coyote ?). The carcass was dragged farther down the hill over the next two weeks and was consumed, except for the skull, vertebrae, one leg and several ribs, after three weeks. Deer scat was found throughout the property especially in the red-cedar and gray birch old field habitats. My children and I have found many antlers over the years in these same areas. I often found tracks on the trails or paths throughout the year. In winter, tracks were visible crossing all fields.

Bird Inventory:

One hundred four species of birds have been reported in the conservation area since I began keeping a record in 1977 (Appendix C). Of these birds, fifty-three have been common in at least one season each year (Appendix D). During the point-count census, forty-eight species were counted at the four sites over the eight census dates (Tables 1 - 4). Blue jays, northern catbirds, mourning doves, American crows, and American robins were seen at all four sites. Others were strongly habitat specific. Most warblers were reported from sites 2 (in the wooded perimeters) and 3. Worm-eating warblers and ovenbirds were observed only in Site 4. The greatest numbers of species were counted on 22 April, 15 May, 31 May, and 2 July. The birds were still territorial and singing during that period. After the 2 July date, it was much quieter and usually only birds that were actually seen were counted. Sites 1 and 2 had the most species and largest numbers reported during the census period. Site 1 had thirty-two species and one hundred thirty-five individuals, whereas Site 2 had thirty-two species and one hundred forty-three individuals. Both of these sites comprise large open areas, and flocks of birds were easily observed flying over. The view of flocks and individual birds in flight was relatively unobstructed and made identifications at these sites easier. I believe that indigo buntings, chestnut-sided warblers, and worm-eating warblers were nesting in the study areas. They were found on census days during the breeding season and also seen/heard on other visits to the property through July.

Of the waterfowl observed over the last seventeen years, only the mallards and Canada geese were seen on a regular basis. Often a pair of mallards would spend several days (spring and fall) at Pond 1. I never found evidence of an attempt to breed. Canada geese flew over the conservation area in spring and fall, occasionally stopping in one of the fields.

TABLE 1. BIRDS RECORDED AT BIRD CENSUS SITE 1 (POND 1) DURING 1994. VALUES REPRESENT THE NUMBER OF INDIVIDUALS DURING A TEN-MINUTE COUNT PERIOD. AN ASTERISK INDICATES SIGHTINGS MADE OUTSIDE OF COUNT PERIOD.

COMMON NAME	4 APRIL	22 APRIL	15 MAY	31 MAY	2 JULY	10 AUG	10 SEPT	21 OCT	TOTAL
Mallard	*								0
Turkey Vulture		*							0
Red-tailed Hawk			1						1
American Kestrel		1							1
Ring-billed Gull	1								1
Mourning Dove								2	2
Eastern Kingbird				1					1
Blue Jay	2	4		1		1		3	16
American Crow		2				8			10
Black-capped Chickadee		2				1			7
Tufted Titmouse		1					4		1
House Wren				1					1
Northern Mockingbird	1	1						1	3
Gray Catbird			2	1	3	2	3		11
Brown Thrasher									1
American Robin	3	3	1	5	4		1		16
Wood Thrush			2						2
European Starling								25	25
Cedar Waxwing				8	2				10
Black-and-white Warbler				1					1
Yellow Warbler				1					1
Common Yellowthroat			1						1
American Redstart				1					1
Red-winged Blackbird				4					4
Common Grackle					2				2
Northern Cardinal			1	1	1				3
House Finch					1				1
Rufous-sided Towhee		1							1
White-throated Sparrow								1	1
Song Sparrow	4		1	1	1			1	8
TOTAL	11	15	9	26	14	12	13	33	133

TABLE 2. BIRDS RECORDED AT BIRD CENSUS SITE 2 (FIELD 8) DURING 1994. VALUES REPRESENT THE NUMBER OF INDIVIDUALS DURING A TEN-MINUTE COUNT PERIOD. AN ASTERISK INDICATES SIGHTINGS MADE OUTSIDE OF COUNT PERIOD.

COMMON NAME	4 APRIL	22 APRIL	15 MAY	31 MAY	2 JULY	10 AUG	10 SEPT	21 OCT	TOTAL
Turkey Vulture		2							2
Red-tailed Hawk		1				1			2
Sharp-shinned Hawk	1								1
Cooper's Hawk						1			1
Ring-billed Gull	6				2				6
Mourning Dove									2
Downy Woodpecker	1			1					1
Great-crested Flycatcher									1
Eastern Phoebe			1			*			1
Tree Swallow									1
Blue Jay	1		1	2			3	4	11
American Crow		3					5	30	53
Black-capped Chickadee			1		1		2		4
Tufted Titmouse	1								1
House Wren					1				1
Gray Catbird					3				1
American Robin	4				1	*			3
Veery				2				12	18
European Starling					18				2
White-eyed Vireo				*					18
Black and White Warbler				1					1
Chestnut-sided Warbler					1				1
Prairie Warbler				1					1
American Redstart			1	1					2
Red-winged Blackbird					1				1
Bronze-headed Cowbird					1				1
Scarlet Tanager			1	1					2
Northern Cardinal				1					1
Indigo Bunting			1	1					2
Rufous-sided Towhee		*							1
TOTAL	14	6	6	11	29	17	10	46	143

TABLE 3. BIRDS RECORDED AT BIRD CENSUS SITE 3 (OLD FIELD) DURING 1994. VALUES REPRESENT THE NUMBER OF INDIVIDUALS DURING A TEN-MINUTE COUNT PERIOD. AN ASTERISK INDICATES SIGHTINGS MADE OUTSIDE OF COUNT PERIOD.

COMMON NAME	4 APRIL	22 APRIL	15 MAY	31 MAY	2 JULY	10 AUG	10 SEPT	21 OCT	TOTAL
Mourning Dove	1				1				2
Eastern Phoebe	*								0
Blue Jay	2	1					5		8
American Crow							1		1
Black-capped Chickadee	4						2		6
Tufted Titmouse	1								1
House Wren				1					1
Gray Catbird				2					7
American Robin	1					3	2		5
Wood Thrush						1	1	2	1
Blue-gray Gnatcatcher		1							1
Golden-crowned Kinglet	2								2
White-eyed Vireo				1					1
Black and White Warbler			1						1
Blue-winged Warbler			1	1					2
Chestnut-sided Warbler			1	1		1			3
American Redstart			4						4
Brown-headed Cowbird		3							3
Gray Catbird			2						2
Northern Cardinal	1								1
House Finch	2								2
Rufous-sided Towhee		2	1				1	2	6
White-throated Sparrow	1							8	9
Unidentified Buteo				1					1
TOTAL	15	7	11	7	6	3	11	10	70

TABLE 4. BIRDS RECORDED AT BIRD CENSUS WOODLAND SITE 4 DURING 1994. VALUES REPRESENT THE NUMBER OF INDIVIDUALS DURING A TEN-MINUTE COUNT PERIOD. AN ASTERISK INDICATES SIGHTINGS MADE OUTSIDE OF COUNT PERIOD.

COMMON NAME	4 APRIL	22 APRIL	15 MAY	31 MAY	2 JULY	10 AUG	10 SEPT	21 OCT	TOTAL
Turkey Vulture		1							1
Red-tailed Hawk						1			1
Wild Turkey			1					1	2
Common Flicker	1	1							2
Red-bellied Woodpecker	1								1
Eastern Phoebe	1	1							2
Eastern Pewee			1	2	1				4
Blue Jay				2					2
American Crow	2							1	3
Black-capped Chickadee	1	3			4	3			11
Tufted Titmouse	2			1				3	6
White-breasted Nuthatch					2				2
Housefinch	1								1
American Robin				3	1				4
Wood Thrush			1	1	3				5
Veery					*				0
Black and White Warbler			2	2					4
Worm-eating Warbler			1	1					2
Ovenbird			2	2					4
Rufous-sided Towhee			1						1
TOTAL	9	6	9	14	11	4	0	5	58

I have often found piles of feathers left by feeding accipiters in the groves of red-cedar. In November 1994, I startled a goshawk flying low through the red-cedars carrying a freshly killed ruffed grouse.

Annotated List of Reptiles:

I identified five species of reptiles in the conservation area, two turtles and three snakes (Appendix E). Breeding was confirmed for painted turtles only. Garter snakes and painted turtles were the most common reptiles observed.

Emydidae

Eastern Box Turtle, *Terrapene carolina* - I found box turtles in the mixed deciduous woodland in the southeastern part of the property. One individual was approximately 25 feet (8 meters) from the southwest edge of Field 4 on the Makuch property, heading west away from the conservation area.

Eastern Painted Turtle, *Chrysemys picta* - Painted turtles were often seen swimming or basking on the banks of Pond 1. Five predated turtle nests were found in June 1994 on a sandy bank on the east side of Coleman Road Extension just south of Pond 1. On 15 May 1994, six adults were observed basking on the banks. One hatchling with a carapace measuring approximately 1.5 inches (35-40 mm) was caught in May 1994.

Colubridae

Northern Water Snake, *Nerodia sipedon* - I often saw water snakes swimming or basking on the banks of Pond 1. An unusual winter record was of a large female (?) found at 1445h EST on 14 January 1995 on Coleman Road Extension just south of the Pond 1, on the west side of the road.

Eastern Garter Snake, *Thamnophis sirtalis* - I often found garter snakes in the wet grassy area near the fence that divides fields 4 and 8. They also were observed in several other grassy areas of the property.

Northern Black Racer, *Coluber constrictor* - In years past, I found black racers along woodland trails and near the stone wall that borders Field 4 on the west. I haven't seen any in the last four years.

Amphibian Inventory:

I found twelve species of amphibians occurring in the conservation area (Appendix F). Breeding was confirmed for eight species, all represented by egg masses or larvae. Of the frogs and toads, only the gray treefrog was not confirmed as a breeding species. Many gray treefrogs can be heard singing all summer, but no evidence of breeding was found. The most abundant species are bull and green frogs (adults and larvae), spring peeper (adults), American toad (adults and larvae) and spotted salamander (adults and larvae).

Annotated List of Amphibians:

Salamandridae

Eastern (Red-spotted) Newt, *Notophthalmus viridescens* - Newts occurred regularly in Pond 1.

Ambystomatidae

Spotted Salamander, *Ambystoma maculatum* - Spotted salamanders occurred in both ponds every March or April when they migrated from the nearby woodlands to breed. Egg masses were abundant in spring and I regularly found larvae in late spring and summer. Spotted salamander larvae may overwinter in this pond, larvae were caught on 31 October 1994 and 16 January 1995. This would be the first record of this species overwintering as larvae in Connecticut (Klemens 1993:43). An albino spotted salamander was caught during breeding activity on 18 March 1991. This individual was a light pinkish white with yellow spots.

Marbled Salamander, *Ambystoma opacum* - Marbled salamander larvae were found in Pond 2 in early spring; many larvae were observed by Geoff Hammerson on 31 March 1994. I have never found adults on the property.

Plethodontidae

Two-lined Salamander, *Eurecea bislineata* - A two-lined salamander larva was caught in a dip net on 31 March 1994 at Pond 1 by Geoff Hammerson. This was the first (and only) record of this species in the pond. Later searches of the feeder stream and pond did not yield any further observations of this species.

Red-backed Salamander, *Plethodon cinereus* - Red-backed salamanders were found under rocks and logs in the moister areas of the woods.

Ranidae

Bullfrog, *Rana catesbeiana* - Bullfrogs and their tadpoles occurred in both ponds. Many larvae were observed in Pond 2 in 1994 (reported by G. Hammerson). Three male bullfrogs were observed sitting at the edge of Pond 1 on 16 January 1995 at 1740h EST during an extended period of exceptionally warm weather (low 60s F during the day).

Green Frog, *Rana clamitans* - Greenfrogs and their tadpoles were found in both ponds although they seemed to be more common at Pond 1. Greenfrog tadpoles were found lying motionless or swimming near the edge of Pond 1 at night through the winter.

Pickerel Frog, *Rana palustris* - I found pickerel frogs at both ponds and observed breeding there also. In May 1991, I observed eighteen pickerel frogs (four in amplexus) around twenty-two new egg masses on the west side of Pond 1.

Wood Frog, *Rana sylvatica* - Wood frogs were found most often at Pond 2, where I saw and heard them during the breeding season in March. Several wood frog egg masses were found near the water's edge. I found adults in the wooded areas of the property and found one individual swimming in Pond 1.

Bufonidae

American Toad, *Bufo americanus* - Breeding American toads regularly congregate in a vernal puddle in Field 2 just to the east of the parking area. Many toads trilled there after dark at the end of March. In 1993 and 1994, the water in this small pool dried up before metamorphosis occurred. Toads were also found during the breeding season along the edges of Pond 1. Long strands of eggs were found in both of these areas. An American toad was caught on 14 January 1995 (after several days of exceptionally warm temperatures in the low 60s F) to the east of the conservation area on Round Hill Road.

Hylidae

Gray Treefrog, *Hyla versicolor* - Gray treefrogs were often heard singing in the wooded areas near water.

Spring Peeper, *Pseudacris crucifer* - Spring peepers were found in all wet areas of the property. They were especially abundant during the breeding season at Pond 1, in the wet grassy area just to the west of the pond, and along the outlet stream that runs between fields 4 and 6.

Vegetation Inventory:

Trees and Shrubs

The rich diversity of vegetation found in the forest and old field habitats supports much of the mammal and bird fauna found in the conservation area. Seventy-six species of trees and shrubs were identified (Appendix G). The most common trees were eastern red-cedar, American beech, gray and black birch, and various oaks. The least common tree was the eastern hemlock. Mountain laurel (*Kalmia latifolia*) was only found along the eastern border of the property. Several invasive alien species are becoming abundant in certain areas. Alien species that I found include Japanese barberry, Asiatic bittersweet, privet, multiflora rose, honeysuckle and glossy buckthorn. The barberry and multiflora rose are well established along most field borders and in the gray birch old field habitat. Bittersweet is abundant and completely covers many trees around Pond 1. Privet is found in some field perimeters (numerous shrubs on the east side of Field 4) and along the trail that runs from the southeast corner of Field 5 into the deciduous forest. Small stands and individual saplings of glossy buckthorn were discovered near field perimeters. Another alien species, wayfaring tree, has become well established along Coleman Road Extension in recent years and appears to be spreading as evidenced by the many immature plants sprouting in this area.

Herbaceous Plants

The conservation area land supports a great diversity of herbaceous plants. Two hundred-seven species were identified (Appendix G). Fifteen species of grasses were found in the fields and woodland. Orchard and sweet vernal grasses were the most abundant of all grasses found. Identification of grasses, sedges and rushes was made difficult by the mowing schedule and more attention should be given to these groups in the future. There were forty-six composites identified including several species of asters, goldenrods, and hawkweeds.

I found many wildflowers growing throughout the various habitats of the property. Of special interest in spring, are the hepaticas, saxifrage, yellow violets, white baneberry, wood and rue anemones, and helleborine orchids found along the main trail in the forest in the southeast. In summer, abundant cardinal flowers, ironweed, boneset, and swamp milkweed were found in the wet meadow associated with Pond 2. Pink azaleas were found next to the trail just before it crosses under the transmission lines. Under the transmission lines, in an area of transition from more shaded woodland to open dry conditions (in 1991 a broadcast application of an herbicide was used in this area, killing everything growing there) were wild indigo, large flowered bellwort, and glaucous honeysuckle. Wild columbine lined Coleman Road Extension on both sides from the parking area to the vicinity of Pond 1 in the spring.

DISCUSSION and RECOMMENDATIONS

The Guida Farm Conservation Area is an ecologically significant addition to the City of Middletown's Open Space Preservation Program. The area includes a rich diversity of flora and fauna. Almost three hundred species of plants, twenty mammals, more than one hundred birds, five reptiles, and twelve amphibians (eight of which are confirmed to be breeding) occur on the property. The conservation area is enhanced by its location. It lies adjacent to other preserved land on the east (Cassa - Middlesex Land Trust) and undeveloped land to the south (Connecticut Light and Power transmission line right away), offering an extensive wildlife corridor that connects preserved land at MCutcheon Park to Middlefield and Durham. White-tailed deer, coyotes, and birds regularly use these greenway linkages. Hikers, cross-country skiers, mountain bikers, and horseback riders also take advantage of the trails in the conservation area and the access routes to other adjoining trails. The conservation area is highly suitable for both passive recreation and environmental education. Since 1993, it has been used in the graduate program at Wesleyan University for courses in mammalogy, ornithology, herpetology, and natural history. The site has also been used by students in Regional District 13 (Durham and Middlefield) for pond studies and by high school students from Suffield Academy studying Native American uses of plants for food, medicine, and technology. It is conveniently situated for use by Middletown public schools as an outdoor classroom in the study of natural history.

Several low-cost management actions could enhance the wildlife and environmental educational values of the conservation area. The placement of more nesting boxes for screech owls, kestrels (declining population, Stoddard, 1994), songbirds and white-footed mice would facilitate wildlife observations. The creation of numbered stations at key habitat or vegetative areas with a brief description (as planned at Middletown's "Nature Gardens")

would assist visitors. The development of a brochure with seasonal information about the flora and fauna would be of primary use to visiting classes and the public. Some of these projects could be taken on by volunteers or civic groups (e.g., local scout troops).

If in the future, the Guidas are no longer able to mow the eight fields for hay, I would suggest that fields 4 and 6 be allowed to mature longer and be mowed once per season either earlier or later in the year (April or October). Altering the schedule for mowing in these two fields will allow the bobolinks and meadowlarks, which have been interrupted in nesting attempts under current management practices, to complete incubation and raise broods successfully. Both of these species need open grassland of at least ten acres (4 hectares) to reproduce.

One area of concern is the number of invasive species on the property. Prominent among these are Asiatic bittersweet, privet, multiflora rose, Japanese barberry, wild madder, and Japanese and tartarian honeysuckle. These plants offer abundant food for wildlife and their dense growth affords protection for small mammals. Many birds use multiflora rose and privet for nest sites. However, they are aggressively invasive and difficult to control once they become established in an area. The Asiatic bittersweet vines in the trees surrounding Pond 1 are so thick that many of the overgrown trees and shrubs are dying or dead. Dense mats of wild madder growing in the fields, especially fields 4 and 8, are out-competing the grasses. At present, there are only a few autumn olive shrubs growing along hedgerows (especially fields 4 and 7). Abundant stands of this invasive alien species exist under the transmission lines to the south of the property. Control of the further spread of these species is advisable and may be accomplished through volunteer effort from scouting organizations or other civic-minded groups.

Based on my survey of the Guida Farm Conservation Area over the past year, several areas of further research are suggested. One, to verify the possibility in Pond 1 of the first occurrence in Connecticut of spotted salamander larvae overwintering. Two, to undertake an inventory of invertebrate species present in the conservation area. Currently, a portion of the property is surveyed each July for butterflies (as part of the annual Xerces Society butterfly census). However, a more complete survey of terrestrial insects (including butterflies) would augment the natural history record of the conservation area. Three, selective planting of native species of food and host plants would enhance the landscape and attract butterflies. Lastly, I would recommend an in-depth inventory of the diverse aquatic invertebrates inhabiting both ponds. An inventory of these ponds would give a good indication of their overall water quality while expanding the database.

I believe that maintaining the property as it is now, in a post-agricultural state with a diversity of habitats, including large open fields, ponds and their associated wetlands, old field habitats, and mature forest acreage, will continue to provide habitat for wildlife, offer diverse landscape for passive recreation, and maximize the educational potential of the conservation area.

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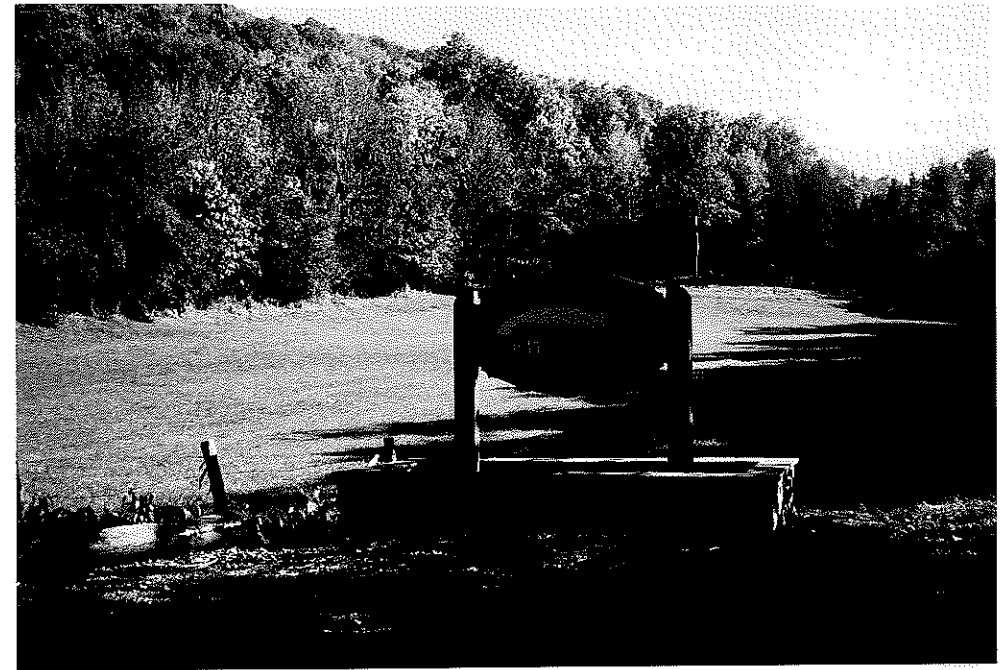
APPENDIX A

Guida Farm Conservation Area
Photographs of Key Habitat and Study Areas
Photographs taken on 10 October 1994

Photograph 1 depicts Field 1 from the south border looking north toward Round Hill Road.



Photograph 2 is of Field 2 just south of the parking area, looking south.



Photograph 3 is from Field 3 looking south toward the larger red-cedar grove.



Photograph 4 is of fields 4 & 6 looking north from the top of Field 6. The barb wire fence that is adjacent to the water course bisecting the fields can be seen in the center.



Photograph 5 is of Field 5 looking north.



Photograph 6 is of Field 7 looking south from the opening to the field.



Photograph 7 is of Field 8 looking south from the entrance.



Photograph 8 is Pond 1 looking west.



Photograph 9 is Pond 2 looking south.



Photograph 10 is gray birch old field near Bird Census Site 3.



Photograph 11 is of the cardinal flowers and New York ironweed in the wet meadow north of Pond 2 (August 1994).



APPENDIX B

Guida Farm Conservation Area
Mammal List

Didelphidae

Opossum, *Didelphis virginianus*

Soricidae

Short-tailed Shrew, *Blarina brevicauda*

Talpidae

Star-nosed Mole, *Condylura cristata*

Eastern Mole, *Scalopus aquaticus*

Vespertilionidae

Bats

Procyonidae

Raccoon, *Procyon lotor*

Mustelidae

Weasel, *Mustela* sp.

Striped Skunk, *Mephitis mephitis*

Canidae

Eastern Coyote, *Canis latrans*

Red Fox, *Vulpes fulva*

Gray Fox, *Urocyon cinereoargenteus*

Sciuridae

Woodchuck, *Marmota monax*

Eastern Chipmunk, *Tamias striatus*

Eastern Gray Squirrel, *Sciurus carolinensis*

Southern Flying Squirrel, *Glaucomys volans*

Muridae

White-footed Mouse, *Peromyscus leucopus*

Meadow Vole, *Microtus pennsylvanicus*

Muskrat, *Ondatra zibethica*

Leporidae

Cottontail, *Sylvilagus* sp. (*Sylvilagus floridanus* ?)

Cervidae

White-tailed Deer, *Odocoileus virginianus*

APPENDIX C
Guida Farm Conservation Area
Bird List

Waterfowl (Anatidae)

Mute Swan, *Cygnus olor*
Canada Goose, *Branta canadensis*
Mallard, *Anas platyrhynchos*

Hérons and Bitterns (Ardeidae)

Great Blue Heron, *Ardea herodias*
Green Heron, *Butorides virescens*

Sandpipers (Scolopacidae)

American Woodcock, *Scolopax minor*

Vultures (Cathartidae)

Turkey Vulture, *Cathartes aura*

Hawks (Accipitridae)

Bald Eagle, *Haliaeetus leucocephalus*
Northern Goshawk, *Accipiter gentilis*
Coopers Hawk, *A. cooperii*
Sharp-shinned Hawk, *A. striatus*
Northern Harrier, *Circus cyaneus*
Red-tailed Hawk, *Buteo jamaicensis*
Broad-winged Hawk, *B. platypterus*
Osprey, *Pandion haliaetus*

Falcons (Falconidae)

American Kestrel, *Falco sparverius*

Turkeys, Grouse, Quails, and Pheasants (Phasianidae)

Ring-necked Pheasant, *Phasianus colchicus*
Wild Turkey, *Meleagris gallopavo*
Northern Bobwhite, *Colinus virginianus*
Ruffed Grouse, *Bonasa umbellus*

Gulls and Terns (Laridae)

Herring Gull, *Larus argentatus*
Ring-billed Gull, *L. delawarensis*
Great Black-backed Gull, *L. marinus*

Pigeons and Doves (Columbidae)

Rock Dove, *Columba livia*
Mourning Dove, *Zenaida macroura*

Owls (Strigidae)

Great Horned Owl, *Bubo virginianus*
Eastern Screech Owl, *Otus asio*

Woodpeckers (Picidae)

Pileated Woodpecker, *Dryocopus pileatus*
Downy Woodpecker, *Picoides pubescens*
Hairy Woodpecker, *P. villosus*
Northern Flicker, *Colaptes auratus*
Red-bellied Woodpecker, *Melanerpes carolinus*

Flycatchers (Tyrannidae)

Eastern Kingbird, *Tyrannus tyrannus*
Great Crested Flycatcher, *Myiarchus crinitus*
Eastern Phoebe, *Sayornis phoebe*
Least Flycatcher, *Empidonax minimus*
Eastern Wood-Pewee, *Contopus virens*

Nightjars (Caprimulgidae)

Whip-poor-will, *Caprimulgus vociferus*

Swifts (Apodidae)

Chimney Swift, *Chaetura pelagica*

Swallows (Hirundinidae)

Barn Swallow, *Hirundo rustica*
Tree Swallow, *Iridoprocne bicolor*
Bank Swallow, *Riparia riparia*
Cliff Swallow, *Petrochelidon pyrrhonota*

Jays, Magpies and Crows (Corvidae)

Blue Jay, *Cyanocitta crisata*
American Crow, *Corvus brachyrhynchos*

Chickadees and Titmice (Paridae)

Black-capped Chickadee, *Parus atricapillus*
Tufted Titmouse, *P. bicolor*

Nuthatches (Sittidae)

White-breasted Nuthatch, *Sitta carolinensis*

Creepers (Certhidae)

Brown Creeper, *Certhia americana*

Wrens (Troglodytidae)

House Wren, *Troglodytes aedon*

Carolina Wren, *Thryothorus ludovicianus*

Kinglets, Gnatcatchers (Muscicapidae)

Blue-gray Gnatcatcher, *Polioptila caerulea*

Golden-crowned Kinglet, *Regulus satrapa*

Ruby-Crowned Kinglet, *R. calendula*

Bluebirds, Solitaires, Thrushes (Muscicapidae, Turdinae)

American Robin, *Turdus migratorius*

Wood Thrush, *Hylocichla mustelina*

Veery, *Catharus fuscescens*

Eastern Bluebird, *Sialia sialis*

Mockingbirds and Thrashers (Mimidae)

Northern Mockingbird, *Mimus polyglottus*

Gray Catbird, *Dumetella carolinensis*

Brown Thrash, *Toxostoma rufum*

Waxwings (Bombycillidae)

Cedar Waxwing, *Bombycilla garrulus*

Starlings (Sturnidae)

European Starling, *Sturnus vulgaris*

Vireos (Vireonidae)

White-eyed Vireo, *Vireo griseus*

Red-eyed Vireo, *V. olivaceus*

Warblers (Emberizidae)

Black-and-white Warbler, *Mniotilta varia*

Worm-eating Warbler, *Helminthos vermivorus*

Blue-winged Warbler, *Vermivora pinus*

Yellow Warbler, *Dendroica petechia*

Magnolia Warbler, *D. magnolia*

Yellow-rumped Warbler, *D. coronata*

Black-throated Green Warbler, *D. virens* *
Chestnut-sided Warbler, *D. pensylvanica*
Prairie Warbler, *D. discolor*
Ovenbird, *Seiurus aurocapillus*
Common Yellowthroat, *Geothlypis trichas*
Hooded Warbler, *Wilsonia citrina*
Canada Warbler, *W. canadensis*
American Redstart, *Setophaga ruticilla*

Grosbeaks, Sparrows, and Buntings

Northern Cardinal, *Cardinalis cardinalis*
Rose-breasted Grosbeak, *Pheucticus ludovicianus*
Indigo Bunting, *Passerina cyanea*
Rufous-sided Towhee, *Pipilo erythrophthalmus*
Dark-eyed Junco, *Junco hyemalis*
American Tree Sparrow, *Spizella arborea*
Chipping Sparrow, *S. passerina*
Field Sparrow, *S. pusilla*
Song Sparrow, *Melospiza melodia*
White-throated Sparrow, *Zonotrichia albicollis*

Blackbirds, Orioles, and Tanagers (Emberizidae)

Bobolink, *Dolichonyx oryzivorus*
Eastern Meadowlark, *Sturnella magna*
Red-winged Blackbird, *Agelaius phoeniceus*
Brown-headed Cowbird, *Molothrus ater*
Common Grackle, *Quiscalus quiscula*
Northern Oriole, *Icterus galbula*
Scarlet Tanager, *Piranga olivacea*

Finches (Fringillidae)

Purple Finch, *Carpodacus purpureus*
House Finch, *C. mexicanus*
Common Redpoll, *Carduelis flammea*
Pine Siskin, *C. pinus*
American Goldfinch, *C. tristis*
Evening Grosbeak, *Hesperiphona vespertina*

Old World Sparrows (Passeridae)

House Sparrow, *Passer domesticus*

NOTE: * Reported by George W. Zepko (Spring, 1994)

Appendix D
Guida Farm Conservation Area
Bird Seasonal Frequency

NAME	WINTER	SPRING	SUMMER	FALL
Waterfowl (Anatidae)				
Mute Swan	R	U	U	U
Mallard	U	C	C	C
Canada Geese	R	U	U	U
Hérons and Bitterns (Ardeidae)				
Great Blue Heron		R	R	R
Green-backed Heron		R	R	R
Sandpipers (Scolopacidae)				
American Woodcock	R	C	U	U
Vultures (Cathartidae)				
Turkey Vulture	U	C	C	C
Hawks (Accipitridae)				
Bald Eagle	R			R
Northern Goshawk	R	R		R
Coopers Hawk	R	R		
Northern Harrier		R		
Sharp-shinned Hawk	C	U		C
Red-tailed Hawk	C	C	C	C
Broad-winged Hawk		U	U	U
Osprey		U	R	U
Falcons (Falconidae)				
American Kestrel	R	C	U	C
Turkeys, Grouse, Quails, and Pheasants (Phasianidae)				
Ring-necked Pheasant				U
Wild Turkey	U	U	U	U
Northern Bobwhite		U	U	
Ruffed Grouse	U	U	U	U
Gulls and Terns (Laridae)				
Herring Gull	U	U	U	U
Ring-billed Gull	C	C	C	C
Great Black-backed Gull	R	R	R	R

NAME	WINTER	SPRING	SUMMER	FALL
Pigeons and Doves (Columbidae)				
Rock Dove	U	U	U	U
Mourning Dove	C	C	C	C
Owls (Strigidae)				
Great Horned Owl	C	U	U	C
Screech Owl	C	C	C	C
Woodpeckers (Picidae)				
Pileated Woodpecker	R	R	R	R
Downy Woodpecker	U	U	U	U
Hairy Woodpecker	U	U	U	U
Northern Flicker	U	C	C	C
Red-bellied Woodpecker	C	C	C	C
Flycatchers (Tyrannidae)				
Eastern Kingbird		C	C	
Great Crested Flycatcher		C	C	
Eastern Phoebe				
Least Flycatcher		U	U	
Eastern Wood-Pewee		C	C	
Nightjars (Caprimulgidae)				
Whip-poor-will			R	
Swifts (Apodidae)				
Chimney Swift			C	
Swallows (Hirundinidae)				
Barn Swallow			C	
Tree Swallow			C	
Bank Swallow			U	
Cliff Swallow			U	
Jays, Magpies and Crows (Corvidae)				
Blue Jay	C	C	C	C
American Crow	C	C	C	C
Chickadees and Titmice (Paridae)				
Black-capped Chickadee	C	C	C	C
Tufted Titmouse	C	C	C	C
Nuthatches (Sittidae)				
White-breasted Nuthatch	C	C	C	C
Creepers (Certhidae)				
Brown Creeper	U	U	U	U

NAME	WINTER	SPRING	SUMMER	FALL
Wrens (Troglodytidae)				
House Wren		C	C	
Carolina Wren	U	C	C	C
Kinglets, Gnatcatchers (Muscicapidae)				
Blue-gray Gnatcatcher		U		
Golden-crowned Kinglet	U			U
Ruby-Crowned Kinglet	R			R
Bluebirds, Solitaires, Thrushes (Muscicapidae, Turdinae),				
American Robin	C	C	C	C
Wood Thrush		C	C	U
Veery		C	C	U
Eastern Bluebird	U	C	C	U
Mockingbirds and Thrashers (Mimidae)				
Northern Mockingbird	C	C	C	C
Gray Catbird		C	C	C
Brown Thrasher		U	U	U
Waxwings (Bombycillidae)				
Cedar Waxwing	C	C	C	C
Starlings (Sturnidae)				
European Starling	C	C	C	C
Vireos (Vireonidae)				
White-eyed Vireo		U	U	
Red-eyed Vireo		U	U	
Warblers (Emberizidae)				
Black-and-white Warbler		C	C	
Worm-eating Warbler		U	C	
Blue-winged Warbler		C	C	
Yellow Warbler		C	C	
Magnolia Warbler		U		
Yellow-rumped Warbler	R	C	C	C
Chestnut-sided Warbler		C	C	
Prairie Warbler		C	C	
Ovenbird		C	C	
Common Yellowthroat		C	C	
Hooded Warbler		U		
Canada Warbler		U		
American Redstart		C	C	
Black-throated Green Warbler *		R		

NAME	WINTER	SPRING	SUMMER	FALL
Grosbeaks, Sparrows, and Buntings				
Northern Cardinal	C	C	C	C
Rose-breasted Grosbeak		U		
Indigo Bunting			C	
Rufous-sided Towhee		C	C	
Dark-eyed Junco	C	U		U
American Tree Sparrow	U			U
Chipping Sparrow		C	C	
Field Sparrow	U			
Song Sparrow	C	C	C	C
White-throated Sparrow	C	U		C
Blackbirds, Orioles, and Tanagers				
Bobolink		U	U	
Eastern Meadowlark		U	C	
Red-winged Blackbird	R	C	C	C
Brown-headed Cowbird		U	U	
Common Grackle		C	C	C
Northern Oriole		C	C	U
Scarlet Tanager		U	U	
Finches (Fringillidae)				
Purple Finch	R			
House Finch	C	C	C	C
Common Redpoll	R			
Pine Siskin	R			
American Goldfinch	U	U	U	U
Evening Grosbeak	U			
Old World Sparrows (Passeridae)				
House Sparrow	C	C	C	C

NOTE:

* = Reported by George W. Zepko, spring 1994

C = May be seen regularly

U = Seldom seen (less than 2 times / season)

R = Rare (less than 3 times since 1977)

APPENDIX E
Guida Farm Conservation Area
Reptile List

Emydidae

Eastern Box Turtle, *Terrapene carolina*
Painted Turtle, *Chrysemys picta*

Colubridae

Northern Water Snake, *Nerodia sipedon*
Eastern Garter Snake, *Thamnophis sirtalis*
Northern Black Racer, *Coluber constrictor*

APPENDIX F
Guida Farm Conservation Area
Amphibian List

Salamandridae

Eastern Newt, *Notophthalmus viridescens*

Ambystomatidae

Spotted Salamander, *Ambystoma maculatum*

Marbled Salamanders, *Ambystoma opacum*

Plethodontidae

Two-lined Salamander, *Eurecea bislineata*

Red-backed Salamander, *Plethodon cinereus*

Ranidae

Bullfrog, *Rana catesbeiana*

Green Frog, *Rana clamitans*

Pickerel Frog, *Rana palustris*

Wood Frog, *Rana sylvatica*

Buфонidae

American Toad, *Bufo americanus*

Hylidae

Gray Treefrog, *Hyla versicolor*

Spring Peeper, *Pseudacris crucifer*

APPENDIX G
Guida Farm Conservation Area
Vegetation List

Trees & Shrubs:

Taxaceae

Canada Yew, *Taxus canadensis*

Pinaceae

Norway Spruce, *Picea abies*

White pine, *Pinus strobus*

Eastern Hemlock, *Tsuga canadensis*

Cupressaceae

Common Juniper, *Juniperus communus*

Eastern Red Cedar, *Juniperus virginiana*

Salicaceae

Willow, *Salix* spp.

Quaking Aspen, *Populus tremuloides*

Myricaceae

Sweetfern, *Comptonia peregrina*

Northern Bayberry, *Myrica pensylvanica*

Juglandaceae

Bitternut Hickory, *Carya cordiformis*

Pignut Hickory, *Carya glabra*

Shagbark Hickory, *Carya ovata*

Betulaceae

Speckled Alder, *Alnus rugosa*

Yellow Birch, *Betula alleghaniensis*

Black Birch, *Betula lenta*

Gray Birch, *Betula populifolia*

American Hornbeam, *Carpinus caroliniana*

Eastern Hophornbeam, *Ostrya virginiana*

Corylaceae

Beaked Hazelnut, *Corylus cornuta*

Fagaceae

American Chestnut, *Castanea dentata*
American Beech, *Fagus grandifolia*
White Oak, *Quercus alba*
Pin Oak, *Quercus palustris*
Chestnut Oak, *Quercus prinus*
Northern Red Oak, *Quercus rubra*
Black Oak, *Quercus velutina*

Ulmaceae

American Elm, *Ulmus americana*
Slippery Elm, *Ulmus rubra*
Red Mulberry, *Morus rubra*

Lauraceae

Spicebush, *Lindera benzoin*
Sassafras, *Sassafras albidum*

Berberidaceae

Japanese Barberry, *Berberis thunbergii*
Common or European Barberry, *Berberis vulgaris*

Hamamelidaceae

Witch Hazel, *Hamamelis virginiana*,

Platanaceae

American Sycamore, *Platanus occidentalis*

Rosaceae

Wild Apple, *Malus spp.*
Sweet Cherry, Mazzard Cherry, *Prunus avium*
Black Cherry, *Prunus serotina*
Chokecherry, *Prunus virginiana*
Wild Rose, *Rosa multiflora*
Swamp Rose, *Rosa palustris*
Common Blackberry, *Rubus allegheniensis*
Black Raspberry, Thimbleberry, *Rubus occidentalis*
Bramble, *Rubus spp.*
Steeplebush, Hardhack, *Spirea tomentosa*

Anacardiaceae

Shining Sumac, *Rhus copallina*
Smooth Sumac, *Rhus glabra*

Poison Ivy, *Rhus radicans*
Staghorn Sumac, *Rhus typhina*

Aquafoliaceae

English Holly, *Ilex aquifolium*
Winterberry, Black Alder, *Ilex verticillata*

Celastraceae

Asiatic Bittersweet, *Celastrus orbiculatus*
Eastern Burningbush, *Euonymus atropurpureus*

Aceraceae

Norway Maple, *Acer platanoides*
Red Maple, *Acer rubrum*
Sugar Maple, *Acer saccharum*

Rhamnaceae

Glossy Buckthorn, European Buckthorn, *Rhamnus frangula*

Vitaceae

Virginia Creeper, *Parthenocissus quinquefolia*
Fox Grape, *Vitis labrusca*

Elaeagnaceae

Autumn Olive, *Elaeagnus umbellata*

Cornaceae

Flowering Dogwood, *Cornus florida*
Black Tupelo, Blackgum, *Nyssa sylvatica*

Ericaceae

Mountain Laurel, *Kalmia latifolia*
Pink Azalea, *Rhododendron nudiflorum*
Low-bush Blueberry, *Vaccinium angustifolius*

Oleaceae

White Ash, *Fraxinus americana*
Green Ash, *Fraxinus pennsylvanica*
Common Privet, *Ligustrum vulgare*

Bignoniaceae

Northern Catalpa, *Catalpa speciosa*

Caprifoliaceae

Japanese Honeysuckle, *Lonicera japonica*
Morrow's Honeysuckle, *Lonicera morrowii*
Tatarian Honeysuckle, *Lonicera atarica*
Elderberry, *Sambucus canadensis*
Wayfaring-tree, *Viburnum lantana*
Maple-leaf Viburnum, *Viburnum acerifolium*

Herbaceous Plants:**Equisetaceae (Horsetail Family)**

Horsetail, Scouring Rush, *Equisetum arvense*

Lycopodiaceae (Club Mosses)

Princess Pine, Tree Pine, *Lycopodium obscurum*
Running Ground Pine, *Lycopodium complanatum*
Lycopodium sp.

Ophioglossaceae (Adder's Tongue Family)

Rattlesnake Fern, *Botrychium virginianum*

Polypodiaceae (Fern Family)

Ebony Spleenwort, *Asplenium platyneuron*
Hay-scented Fern, *Dennstaedtia punctilobula*
Marginal Wood Fern, *Dryopteris marginalis*
Sensitive Fern, *Onoclea sensibilis*
Polypody, *Polypodium virginianum*
Christmas Fern, *Polystichum acrostichoides*

Graminae (Grass Family)

Quack Grass, *Agropyron repens*
Common Foxtail, *Alopecurus carolinianus*
Little Bluestem, *Andropogon scoparius*
Sweet Vernal Grass, *Anthoxanthum odoratum*
Poverty Grass, *Aristida dichomata*
Tall Oats Grass, *Arrhenatherum elatius*
Orchard Grass, *Dactylis spp.*
Crabgrass, *Digitaria sanguinalis*
Rye Grass, *Secale cereale* ?
Panic Grass, *Panicum lanuginosum*
Reed Canary Grass, *Phalaris arundinacea*
Timothy Grass, *Phleum pratense*
Kentucky Bluegrass, *Poa pratensis*

Meadow Grass, *Poa sp.*
Foxtail Grass, *Setaria sp.*

Cyperaceae (Sedge Family)

Carex laxiflora
Carex lupulina
Carex pensylvanica
Carex scoparia
Carex stricta (Tussock Sedge)
Carex vulpinoidea
Cyperus esculentus
Cyperus strigosus
Eleocharis acicularis (Spike Rush)

Araceae (Rush Arum Family)

Sweetflag, *Acorus calamus*
Skunk Cabbage, *Symplocarpus foetidus*

Lemonaceae (Duckweed Family)

Duckweed, *Lemna sp.*

Commelinaceae (Spiderwort Family)

Asiatic Dayflower, *Commelina communis* *

Juncaceae (Rush Family)

Soft Rush, *Juncus effusus*
Path Rush, *Juncus tenuis*
Wood Rush, *Luzula multiflora*

Liliaceae (Lily Family)

Wild Onion, Field Garlic, *Allium vineale*
Yellow Trout Lily, *Erythronium americanum*
Common Day Lily, *Hemerocallis fulva* *
Canada Mayflower, Wild Lily of the Valley, *Maianthemum canadense*
Solomon's Seal, *Polygonatum biflorum*
False Solomon's Seal, *Smilacina racemosa*
Greenbrier, Catbrier, *Smilax rotundifolia*
Large Flower Bellwort, *Uvularia grandifolia*
Bellwort, *Uvularia perfoliata*
False Hellebore, *Veratrum viride*

Amaryllidaceae (Amaryllis Family)

Yellow Stargrass, *Hypoxis hirsuta*

Iridaceae (Iris Family)

Blue-eyed Grass, *Sisyrinchium* sp.

Orchidaceae (orchid Family)

Pink Lady's Slipper, *Cypripedium acaule*

Helleborine, *Epipactis helleborine* *

Downy Rattlesnake Plantain, *Goodyera pubescens*

Urticaceae (Nettle Family)

Clearweed, *Pilea pumila*

Santalaceae (Sandlewood Family)

Bastard Toadflax, *Commandra umbellata*

Polygonaceae (Buckwheat Family)

Long Bristled Smartweed, *Polygonum cespitosum**

Common Smartweed, *P. hydropiper*

Nodding Smartweed, *P. lapathifolium*

Lady's Thumb, *P. persicaria**

Arrow-leaved Tearthumb, *P. saggitatum*

Japanese Knotweed, *Reynoutria japonica**

Sheep Sorrel, *Rumex acetosella*

Curly Dock, *R. crispus**

Broad-leaved Dock, *R. obtusifolius**

Chenopodiaceae (Goosefoot Family)

Lamb's Quarters, Pigweed, *Chenopodium album**

Phytolaccaceae (Pokeweed Family)

Pokeweed, *Phytolacca americana*

Portulacaceae (Purselane Family)

Spring Beauty, *Claytonia virginica*

Common Purselane, *Portulaca oleracea*

Caryophyllaceae (Pink Family)

Mouse-ear Chickweed, *Cerastium vulgatum**

Deptford Pink, *Dianthus armeria**

Evening Lychnis, White Champion, *Lychnis alba**

Lesser Stitchwort, *Stellaria graminea**

Common Chickweed, *S. media**

Ranunculaceae (Crowfoot Family)

White Baneberry, *Actaea pachypoda*
Wood Anemone, *Anemone quinquefolia*
Rue Anemone, *Anemonella thalictroides*
Columbine, *Aquilegia canadensis*
Round-leaved Hepatica, *Hepatica americana*
Small-flowered Buttercup, *Ranunculus abortivus*
Common Buttercup, *R. acris**
Early Meadow-rue, *Thalictrum dioicum*
Tall Meadow-rue, *T. polygamum*

Papaveraceae (Poppy Family)

Celandine, *Chelidonium majus**

Cruciferae (Mustard Family)

Garlic Mustard, *Alliaria petiolata**
Early Wintercress, *Barbarea verna**
Common Wintercress, *B. vulgaris**
Black Mustard, *Brassica nigra**
Shepherd's-purse, *Capsella bursa-pastoris**
Dame's Rocket, *Hesperis matronalis**
Field Peppergrass, *Lepidium campestre**
Honesty, *Lunaria annua**
Creeping Yellow Cress, *Rorippa sylvestris**

Saxifragaceae (Saxifrage Family)

Early Saxifrage, *Saxifraga virginensis*

Rosaceae (Rose Family)

Agrimony, *Agrimonia gryposepula*
Wild Strawberry, *Fragaria virginiana*
Avens, *Geum* spp.
Dwarf Cinquefoil, *Potentilla canadensis*
Rough Cinquefoil, *P. norvegica*
Common Cinquefoil, *P. simplex*

Leguminosae (legume Family)

Hog peanut, *Amphicarpa bracteata*
Wild Indigo, *Baptisia tinctoria*
Crown Vetch, *Coronilla varia**
Panicked Tick Trefoil, *Desmodium paniculatum*
Alfalfa, *Medicago sativa**
Red Clover, *Trifolium pratense**

White Clover, *T. repens**

Cow Vetch, *Vicia cracca*

Oxalidaceae (Wood Sorrel Family)

Yellow Wood Sorrel, *Oxalis europaea*

Geraniaceae (Geranium Family)

Wild Geranium, *Geranium maculatum*

Polygalaceae (Milkwort Family)

Whorled Milkwort, *Polygala verticillata*

Balsaminaceae (Touch-me-not Family)

Jewelweed, *Impatiens capensis*

Guttiferae (St. John's Wort Family)

Common St. John's Wort, *Hypericum perforatum**

Dwarf St. John's Wort, *H. mutilum*

Cistaceae (Rockrose Family)

Slender Pinweed, *Lechea tenuifolia*

Violaceae (Violet Family)

Early Blue Violet, *Viola palmata*

Common Blue Violet, *V. papilionacea**

Downy Yellow Violet, *V. pubescens*

Unidentified White/purple Violet of Fields, *V. sp*

Onagraceae (Evening Primrose Family)

Enchanter's Nightshade, *Circaea quadrisulcata*

Northern Willow Herb, *Epilobium glandulosum*

Common Evening Primrose, *Oenothera biennis*

Araliaceae (Ginseng Family)

Wild Sarsaparilla, *Aralia nudicaulis*

Umbelliferae (Parsley Family)

Queen Anne's Lace, Wild Carrot, *Daucus carota**

Cow Parsnip, *Heracleum lanatum*

Water Pennywort, *Hydrocotyle umbellata*

Golden Alexanders, *Zizia aurea*

Pyrolaceae (Wintergreen Family)

Spotted Wintergreen, *Chimaphila maculata*
Indian Pipe, *Monotropa uniflora*
Shinleaf, *Pyrola elliptica*

Primulaceae (Primrose Family)

Whorled Loosestrife, *Lysimachia quadrifolia*

Apocynum (Dogbane Family)

Intermediate Dogbane, *Apocynum medium*

Asclepiadaceae (Milkweed Family)

Swamp Milkweed, *Asclepias incarnata*
Common Milkweed, *A. syriaca*

Convolvulaceae (Morning-glory Family)

Field Bindweed, *Convolvulus arvensis**

Boraginaceae (Borage Family)

Smaller Forget-me-not, *Myosotis laxa*

Labiatae (Mint Family)

Horse-Balm, Richweed, *Collinsonia canadensis*
Gill-over-the-ground, Ground Ivy, *Glechoma hederacea**
Scullycap, *Scutellaria* spp. ?
Virginia Bugleweed, *Lycopus virginicus*
Wild Mint, *Mentha arvensis*
Heal-all, *Prunella vulgaris**
Short-toothed Mountain Mint, *Pycnanthemum muticum*
Bluecurls, *Trichostema dichotomum*

Scrophulariaceae (Figwort Family)

Butter-and-Eggs, *Linaria vulgaris**
Cow-wheat, *Melampyrum lineare*
Monkey-flower, *Mimulus ringens*
Common Mullein, *Verbascum thapsus**
Marsh Speedwell, *Veronica scutellata*

Orobanchaceae (Broom-rape Family)

Beech-drops, *Epifagus virginiana*

Plantaginaceae (Plantain Family)

English Plantain, *Plantago lanceolata**

Common Plantain, *P. major**

Rubiaceae (Madder Family)

Wild Licorice, *Galium lanceolatum*

Wild Madder, *Galium mollago**

Bluets, *Houstonia caerulea*

Partridgeberry, *Mitchella repens*

Campanulaceae (Bluebell Family)

Cardinal-flower, *Lobelia cardinalis*

Indian Tobacco, *L. inflata*

Compositae (Composite Family)

Yarrow, *Achillea millefolium**

Common Ragweed, *Ambrosia artemisiifolia*

Giant Ragweed, *A. trifida*

Field Pussytoes, *Antennaria neglecta*

Common Burdock, *Arctium minus**

Heart-leaved Aster, *Aster cordifolius*

White-wood Aster, *A. divaricatus*

New England Aster, *A. novae-angliae*

Panicled or Tall White Aster, *A. simplex*

Small White Aster, *A. vimineus*

Nodding Bur-marigold, *Bidens cernua*

Leafy-bracted Beggars Ticks, *B. comosa*

Spotted Knapweed, *Centaurea maculosa**

Pineapple-weed, *Chamomilla suaveolens**

Chicory, *Chicorium intybus**

Tall Thistle, *Cirsium altissimum* (?)

Swamp Thistle, *C. muticum* (?)

Bull Thistle, *C. vulgare*

Pilewort, Fireweed, *Erechtites hieracifolia*

Daisy Fleabane, *Erigeron annuus*

Horseweed, *E. canadensis*

Common Fleabane, *E. philadelphicus*

Robin's Plantain, *E. pulchellus*

Boneset, *Eupatorium perfoliatum*

Quickweed, *Galinsoga quadriradiata**

Sweet Everlasting, *Gnaphalium obtusifolium*

King Devil Hawkweed, *Hieracium caespitosum**

Panicled Hawkweed, *H. paniculatum*

Mouse-ear Hawkweed, *H. pilosella**
 Rattlesnake-weed, *H. venosum*
 Wild Lettuce, *Lactuca canadensis*
 Fall Dandelion, *Leontodon autumnalis**
 Ox-eye Daisy, *Leucanthemum vulgare**
 White Lettuce, Rattlesnake-root, *Prenanthes alba*
 Black-eyed Susan, *Rudbeckia serotina*
 Golden Ragwort, *Senecio aureus*
 Round-leaved Ragwort, *S. obovatus*
 Silver-rod, *Solidago bicolor*
 Blue-stemmed Goldenrod, *S. caesia*
 Canada Goldenrod, *S. canadensis*
 Late Goldenrod, *S. gigantea*
 Grass-leaved Goldenrod, *S. graminifolia*
 Early Goldenrod, *S. juncea*
 Rough-stemmed Goldenrod, *S. rugosa*
 Dandelion, *Taraxacum officinale**
 Ironweed, *Veronia noveboracensis*

NOTE:

***: Alien species**

?: Identification uncertain